REMARKS

Claims 1 through 16 are pending in the application. Claims 1, 14, 15 and 16 have been amended to clarify that the regrind incorporated into the claimed films is formed from the recited white, biaxially oriented, flame-retardant and UV-resistant polyester film, which has subsequently been recycled. Claim 1 has been further amended to emphasize advantageous aspects of the invention in which the flame retardant has been predried and precrystallilzed prior to its incorporation into the recited film. Support for these amendments can be found in the application as filed.

Reexamination and reconsideration of this application, withdrawal of all objections and rejections, and formal notification of the allowability of the claims as now presented are earnestly solicited in light of the remarks which follow.

Submission of Terminal Disclaimers

Claims 1 through 16 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting in light of copending Application Nos. 09/421,068; 09/791,447; 09/781,802 or 09/781,722 in view of cited secondary references. Solely to advance prosecution of the case and without addressing the merits of the rejection, Applicants will respectfully submit terminal disclaimers upon the indication of allowable subject matter, as suggested by the Examiner. More particularly, Applicants will submit terminal disclaimers disclaiming the terminal part of any patents granted on the above-identified applications extending beyond the expiration date of the full statutory term which may ultimately result from the cited copending applications, i.e. Application Nos. 09/421,068; 09/791,447; 09/781,802 or 09/781,722.

The Claimed Invention is Patentable in Light of the Art of Record

Claims 1 through 16 stand rejected under 35 USC § 103 (a) as unpatentable over United States Patent No. 5,843,578 to Sasaki et al. ("Sasaki") in view of United States Patent No. 5,869,586

to Reidel et al. ("Reidel") or United States Patent No. 5,179,171 to Minami et al. ("Minami") or United States Patent No. 4,614,778 to Kajiura et al. ("Kajiura"), and further in view of UK Patent Application GB 2344596 ("GB '596") or United States Patent No. 3,950,301 to Balog et al. ("Balog"), further in view of United States Patent No. 5,955,181 to Peiffer et al. ("Peiffer")

Claims 1 through 16 stand further rejected under 35 USC § 103 (a) as unpatentable over Japanese Patent Applications 05-009319 or 05-140349 or 11-035717 ("JP '319", "JP '349" and "JP '717", respectively), in view of GB '596 or Balog et al., and further in view of Peiffer.

Applicants respectfully submit that the claimed invention is patentable in light of the art of record. It may be useful to consider the invention as recited in the claims before addressing the merits of the rejection. The claims recite white, biaxially oriented polyester film comprising from 8-10% by weight of a cyclo olefin copolymer (COC) based upon a cycloolefin monomer and an acyclic olefin monomer, where the glass transition temperature of the COC is within the range greater than 110 to 270°C. In addition to COC, the layer comprises at least one UV stabilizer and a flame retardant, which is fed directly as a masterbatch to the polyester during film production. The polyester film further contains 10-70% by weight of the reground film.

The recited films provide a heretofore unknown and highly advantageous balance of properties, i.e. whiteness, UV resistance, flame retardance and recyclabiltiy. Quite unexpectedly, Applicants have found that white polyester films, particularly the recited films incorporating multiple additives providing a range of functionality, may be readily recycled back into film production. Such an ability to recycle film is important to the commercial viability of the resulting product, and is altogether surprising for the films of the invention. More specifically, the recyclability of the recited films at up to 70 wt% without detrimentally impacting the resulting color of the film would not have been expected, given that the claimed films contain several components that heretofore have produced yellowness within recycled materials.

The addition of polymeric agents to whiten polyester films is known, as noted in the Application as filed. It is known in the art to fill polyester films with polyolefin (such as

polypropylene) or polystyrene to induce whiteness, for example. However, in addition to other performance criteria, polyester film compositions should, if at all possible, be suitable for recycling to assure the commercial viability of the given film. The conventional whitening polymers mentioned above, i.e. traditional polyolefins or polystyrene, cause significant yellowing within the resulting recycled film, leading either to off-quality or unusable product. Surprisingly, white polyester films incorporating the recited amounts (i.e. the recited 8 to 10 wt %) of a particular polymeric family (i.e. cyclo olefinic copolymer) do not yellow significantly upon recycling and the recycled film may thus be re-extruded into subsequent films in significant amounts (i.e. up to the recited 70 wt %). The Examiner's attention is directed to Comparative Examples 1 through 3 (containing 2.5%; 5.0% and 10% polypropylene, respectively), as well as Comparative Example 4 (containing 6.5 % polystyrene). Each of Comparative Examples 1 through 4 exhibited marked yellow coloration upon incorporation of 50 wt% of recycled films. In contrast, the films of the invention exhibit minimal yellowness upon incorporation of 50 wt% recycled film, as indicated in Example 2.

The minimal color impact imparted by the recycled recited films is even more surprising because the claimed white polyester films further include UV stabilizer and flame retardant, both of which would be expected to detrimentally impact the yellowness values of recycled films. In fact, films containing conventional UV stabilizers can be so sensitive that they impart yellowing immediately after production (versus upon recycling), as noted in the Application as filed.

Remarkably, the recited COC polymers further provide improved surface roughness in comparison to conventional whitening polymers, such as polyolefins and polystyrene. This improved surface roughness translates into higher gloss values for the films of the invention in comparison to comparable conventional white polyester films.

Applicants have also found that the recited films provide advantageous processing and/or quality benefits, as well. More specifically, Applicants have determined that the recited class of COC polymers, i.e. having a Tg ranging from greater than 110 to 270 °C, and the recited precrystallized, predried flame retardant masterbatches improve the quality and/or processability of

the resulting films. If the COC component glass transition temperature is too low, the resulting composition is difficult to extrude, whiteness is detrimentally impacted and the recycle has a tendency to yellow, as noted in the Application as filed. Conversely, if the glass transition is too high, the composition does not homogenize well during extrusion, resulting in non-uniform properties. Applicants have thus found a beneficial class of COC polymers, i.e. COC polymers having a Tg ranging from greater than 110 to 270 °C, that provide improved processability, recyclability and uniformity.

Applicants have further determined that the beneficial claimed predried, precrystallized masterbatched flame retardants provide processing benefits, as well. Conventional flame retardants can cake upon drying, making it difficult to produce film. Applicants have found that predrying and precrystallizing masterbatched flame retardants reduces caking in the dryer. The recited predried and precrystallized masterbatched flame retardants have further been determined to reduce embrittlement upon exposure to high heat and to improve the folding properties of the resulting film.

Applicants thus respectfully submit that the recited white, flame-retardant, UV-resistant polyester films of the invention provide a heretofore unknown balance of beneficial properties, and that the claimed invention is patentable in light of the art of record.

Sasaki is generally directed to the use of a relaxation treatment during manufacture that purportedly improves the tear properties for hazy polyester films. (Col. 3, lines 30 – 42 and Col. 2, lines 3 - 10). Sasaki produces hazy films by including an additional thermoplastic resin that is incompatable with polyester. (Col. 343 – 47) Sasaki notes a laundry list of resins that may be used to induce voids, including polystyrene and polyolefins. (Col. 4, line 52 - Col. 5, line 5). Sasaki further recommends the incorporation of up to 40 wt % of the void forming polymer. (Col. 5, lines 5 – 10).

However, Sasaki, considered either alone or in combination with the art of record, does not teach or suggest the UV-resistant, flame-retardant white films of the invention, incorporating COC copolymer and including up to 70 wt% recycled film. In fact, if Sasaki's working examples were to be recycled, they would exhibit marked yellowness, as indicated by the Comparative Examples

within the application as filed. Sasaki would thus teach away from the recited incorporation of recycled film within white films. Sasaki further does not teach or suggest cyclic olefin copolymers, much less the recited incorporation of 8 to 10 wt % COC, and certainly not COC's exhibiting the recited glass transitions ranging from 110 to 270 °C. Sasaki also does not teach or suggest such white films further containing UV stabilizer and flame retardant, and certainly not the predried, precrystallized masterbatched flame retardant of the claimed invention.

Sasaki further does not teach or suggest the white flame-retardant, UV-resistant polyester film exhibiting an opacity above 60%, which further comprises from 0.1 to 5% by weight of a UV stabilizer and 1 to 20% by weight of a flame retardant and up to 70% recycled film, as recited in Claim 14. Nor does Sasaki teach or suggest such films exhibiting a whiteness above 70% or a gloss above 18, as recited in Claims 15 and 16, respectively.

The cited Japanese references, i.e. JP '319, JP '349 and JP '717, similarly do not teach or suggest the claimed invention, reciting white polyester films incorporating 8 to 10 wt % COC, and certainly not such films containing COC's in the recited amounts and further exhibiting the recited glass transitions ranging from 110 to 270 °C. As correctly noted by the Examiner, the cited Japanese references are directed to the use of cyclic olefins within polyester film. The '319 reference is directed to the use of up to 50 wt % of particular cyclic olefin copolymers. The '349 reference is directed to the use of up to 50 wt % of a particular cyclic olefin polymer (not copolymer). The '717 reference is primarily directed to the use of up to 80 wt % of a particular cyclic olefin polymer.

However, none of the cited Japanese references, considered either alone or in combination with the art of record, teaches or suggests the recited UV-resistant, flame-retardant white films of the invention, incorporating COC copolymer in amounts ranging from 8 to 10 % by weight and further including up to 70 wt% recycle. The cited Japanese references further do not teach or suggest such recited white films further containing UV stabilizer and flame retardant, and certainly not the predried, precrystallized masterbatched flame retardant of the claimed invention.

Applicants respectfully submit that there would have been no motivation to have combined the cited references. Applicants respectfully reiterate that merely because the references can be combined is not enough, there must still be a suggestion. MPEP 2143.01 (section citing Mills). However, even if combined (which Applicants submit should not be done), the secondary references, i.e. Reidel, Minami, Kajiura, GB'596, Balog or Peiffer, do not cure the deficiencies within Sasaki, JP '319, JP' 349 or JP '717.

Reidel, Minami and Kajiura are all primarily directed to the production of COC resins. Reidel discloses the use of metallocene catalyst to form COC. (Col. 1, lines 4 – 6 and lines 28 – 45.) Although broadly noting that COC may be used as an additive in an unspecified amount, Reidel is primarily concerned with polymer compostions formed primarily or exclusively from COC. (Col. 9, lines 22 through 35). Thus Reidel does not teach or suggest the incorporation of COC into white polyester film in amounts ranging from 8 to 10 wt%, amongst other distinguishing features.

Minami is directed to COCs formed without a ring opening reaction. (Col. 2, lines 37 – 47 and Abstract). Similar to Reidel, Minami merely broadly notes that unspecified amounts of his resin may be used along with a laundry list of other polymers. (Col. 16, line 27 through Col. 17, line 39). Minami also broadly notes that his resin may be molded by a general list of known methods, including injection molding and the like. (Col. 13, lines 20 – 25). Thus Minami does not teach or suggest the incorporation of COC into white polyester film in amounts ranging from 8 to 10 wt%, amongst other distinguishing features.

Kajiura is directed to COCs formed from a particular octahydronaphthalene. (Col. 1, lines 4 – 6 and Col. 3, lines 39 - 43). Kajiura similarly broadly notes that unspecified amounts of his resin may be used along with a laundry list of other polymers. (Col. 14, line 58 through Col. 15, line 65). Kajiura likewise notes that his resin may be molded by a general list of known methods. (Col. 12, lines 25 – 33). Thus Kajiura does not teach or suggest the incorporation of COC into white polyester film in amounts ranging from 8 to 10 wt%, amongst other distinguishing features.

GB '596 and Balog are directed to flame retardant, UV resistant polymers. GB '596 incorporates up to 45 wt % flame retardant and up to 10 weight percent of UV stabilizer into polyester films. (Page 17, Claims 5 and 6 and Page 7, lines 15 – 16) Balog is primarily directed to polyester resins incorporating a particular type of UV stabilizer. (Col. 1, lines 57 – 69). However, neither GB '596 nor Balog teach or suggest the use of the recited predried or precrystallized flame retardant masterbatches, amongst other distinguishing features.

Pieffer is directed to heat sealable films which incorporate ethylene 2,6-naphthalate ("EN") units into the heat seal layer. Pieffer generally notes that his films may contain "conventional additives" in "usual" amounts. (Col. 6, lines 49 – 51). Pieffer notes that the films of his invention may be recycled in amounts of up to 50 wt. %. (Col. 8, lines 30 – 35). Pieffer does not teach or suggest white polyester films containing recycled cyclic olefin copolymers, and particularly not such films containing 8 to 10 wt% cyclic olefin copolymers, amongst other distinguishing features.

The ability of a given chemical compound, such as EN, (or polymer thereof) to withstand the rigors of recycle can not be imputed from one chemical compound to another. Although some polymers, such as polyethylene terephthalate, can be recycled/re-used in subsequent films, others either can not be recycled altogether, or can not be included within virgin film compositions in significant amounts. As noted above, recycled conventional whitening polymers, such as polypropylene and polystyrene, induce yellowing in the resulting film when introduced into virgin polymer compositions in appreciable amounts. It was thus unexpected that the recited cyclo olefinic copolymers of the invention, included within the claimed white polyester films in amounts ranging from 8 to 10 weight percent, could contain up to 70 wt % recycle polymer, without significant impact to yellowness. It was even more surprising that such films could further include the recited UV stabilizer and flame retardant.

Applicants thus respectfully submit that Reidel, Minami, Kajiura, GB '596, Balor or Pieffer, considered either alone or in combination with the art of record, do not teach or suggest the claimed invention. Neither Reidel, Minami, Kajiura, GB '596, Balor or Pieffer teach or suggest incorporating COC into polyester films at 8 to 10 wt % to form white films that further include up to

70 wt % recycle. Nor do Reidel, Minami or Kajiura, GB '596, Balor or Pieffer teach or suggest the benefits of the incorporating COC's exhibiting the recited glass transitions ranging from 110 to 270 °C into white polyester films. Reidel, Minami, Kajiura, GB '596, Balor or Pieffer further do not teach or suggest the recited white polyester films containing UV stabilizer and flame retardant, and certainly not the predried, precrystallized masterbatched flame retardant of the claimed invention.

Consequently, Reidel, Minami, Kajiura, GB '596 or Pieffer further do not teach or suggest the white flame-retardant, UV-resistant polyester film exhibiting an opacity above 60%, which further comprises from 0.1 to 5% by weight of a UV stabilizer and 1 to 20% by weight of a flame retardant and up to 70% recycled film, as recited in Claim 14. Nor do they teach or suggest such films exhibiting a whiteness above 70% or a gloss above 18, as recited in Claims 15 and 16, respectively.

Even if one had combined these references (which Applicants submit should not be done), the present invention would not have resulted. Sasaki recommends the incorporation of up to 40 wt % of a void forming polymer. JP '319 discloses resins incorporating up to 50 wt % cyclic olefin copolymers. JP '349 similarly discloses resins incorporating up to 50 wt % cyclic olefin polymer. JP '717 discloses resins incorporating up to 80 wt % cyclic olefin polymer. Reidel, Minami and Kajiura are merely directed to the production of particular COC resins. GB '596 is directed to resins containing up to 45 wt % flame retardant. Balog is directed to polyester resins incorporating a particular type of UV stabilizer. Pieffer is directed to heat sealable films incorporating EN units. Accordingly, the combination of references does not teach or suggest the recited UV-resistant, flame-retardant white films of the invention, incorporating 8 to 10 wt % of COC which exhibits a Tg ranging from 110 to 270 °C, in which the film further includes up to 70 wt% recycle. The combination of references further also does not teach or suggest the recited white films containing UV stabilizer and flame retardant, and certainly not the predried, precrystallized masterbatched flame retardant of the claimed invention.

Accordingly, Applicants respectfully submit that the claimed invention is patentable in light of the art of record, considered either alone or in combination.

CONCLUSION

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 16 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

It is not believed that fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional fees are necessary to allow consideration of this paper, the fees are hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

U. Schweitzer

Klaus Schweitzer
See attached Limited Recognition
Under 37 CFR§10.9(b)

ProPat, L.L.C.
2912 Crosby Road
Charlotte, NC 28211
Telephone: 704-365-4881
Facsimile: 704-365-4851

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I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on October 9, 2003.

Claire Wygand

Claire Wygand